Amendments to the Claims

1. (Previously Presented) A method of scaling a halftone image using error diffusion, the method comprising:

identifying a first matrix of n x m pels in the halftone image;

calculating an average intensity of the first matrix of pels;

generating a second matrix of (n+1) x m pels from the first matrix of pels by inserting a line of pels in the first matrix of pels;

generating a scaled output matrix of (n+1) x m pels from the second matrix of pels by assigning new pel values to each pel in the line of pels using an error diffusion process, wherein the average intensity of the scaled output matrix of pels is substantially unchanged from the average intensity of the first matrix of pels;

generating a (n+1) x m shift matrix based on the second matrix and including at least one shift indicator defining an exchange between a pel and its neighboring pel, wherein a probability of occurrence of the at least one shift indicator in a position of the (n+1) x m shift matrix is proportional to a distance between the position and the line of pels in the second matrix;

exchanging at least one pel in the scaled output matrix with its neighboring pel based on the shift matrix; and

performing the previous steps for each unidentified matrix of n x m pels in the halftone image to generate a scaled output of the halftone image.

2. (Cancelled).

3. (Previously Presented) The method of claim 1 wherein no pel in the first matrix of pels is shifted more than one position from its neighboring pels to generate the scaled output matrix.

4. (Currently Amended) The method of claim [[3]] 1 wherein no pel in the first matrix of pels is shifted more than once to generate the scaled output matrix.

5. (Previously Presented) The method of claim 1 wherein the error diffusion process comprises:

identifying a n' x m' matrix of pels around each pel in the line of pels, wherein n' > n and m' > m; and

assigning each new pel value in the scaled output matrix of pels using a threshold based on an average intensity calculation of of pel values in the n' x m' matrix of pels.

6. (Previously Presented) The method of claim 1 wherein the error diffusion process comprises:

identifying a n' x m' matrix of pels around each pel in the line of pels, wherein n' > n and m' > m; and

assigning each new pel value in the scaled output matrix of pels based on a calculation of a rounded weighted mean of pel values in the n' x m' matrix of pels.

7. (Currently Amended) A system operable to scale a halftone image using error diffusion, the system comprising:

a spooler operable to convert a contone image into the halftone image for processing; and

an error diffusion scaler operable to identify a first matrix of n x m pels in the halftone image, to calculate an average intensity of the first matrix of pels, to generate a second matrix of (n+1) x m pels from the first matrix of pels by inserting a line of pels in the first matrix of pels, to generate a scaled output matrix of (n+1) x m pels from the second matrix of pels by assigning new pel values to each pel in the line of pels using an error diffusion process, wherein the average intensity of the scaled output matrix of pels is substantially unchanged from the average intensity of the first matrix of pels, to generate a (n+1) x m shift matrix based on the second matrix and including at least one shift indicator defining an exchange between a pel and its neighboring pel, wherein a probability of occurrence of the at least one shift indicator in a position of the shift matrix is proportional to a distance between the position and the line of pels in the second matrix, to exchange at least one pel in the scaled output matrix with its neighboring pel based on the shift matrix[[.]], and to perform the previous steps for each unidentified matrix of n x m pels in the halftone image ~~to generate~~ generating a scaled output of the halftone image.

8. (Cancelled).

9. (Previously Presented) The system of claim 7 wherein no pel in the first matrix of pels is shifted more than one position from its neighboring pels to generate the scaled output matrix.

10. (Previously Presented) The system of claim 7 wherein no pel in the first matrix of pels is shifted more than once to generate the scaled output matrix.

11. (Previously Presented) The system of claim 7 wherein the error diffusion process comprises:

identifying a n' x m' matrix of pels around each pel in the line of pels, wherein n' > n and m' > m; and

assigning each new pel value in the scaled output matrix of pels using a threshold based on an average intensity calculation of of pel values in the n' x m' matrix of pels.

12. (Previously Presented) The system of claim 7 wherein the error diffusion process comprises:

identifying a n' x m' matrix of pels around each pel in the line of pels, wherein n' > n and m' > m; and

assigning each new pel value in the scaled output matrix of pels based on a calculation of a rounded weighted mean of pel values in the n' x m' matrix of pels.

13. (Previously Presented) A computer readable medium tangibly embodying programmed instructions which, when executed by a computer system, are operable for performing a method of scaling a halftone image using error diffusion, method comprising:

identifying a first matrix of n x m pels in the halftone image;

calculating an average intensity of the first matrix of pels;

generating a second matrix of (n+1) x m pels from the first matrix of pels by inserting a line of pels in the first matrix of pels;

generating a scaled output matrix of (n+1) x m pels from the second matrix of pels by assigning new pel values to each pel in the line of pels using an error diffusion process, wherein the average intensity of the scaled output matrix of pels is substantially unchanged from the average intensity of the first matrix of pels;

generating a (n+1) x m shift matrix based on the second matrix and including at least one shift indicator defining an exchange between a pel and its neighboring pel, wherein a probability of occurrence of the at least one shift indicator in a position of the shift matrix is proportional to a distance between the position and the line of pels in the second matrix;

exchanging at least one pel in the scaled output matrix with its neighboring pel based on the shift matrix; and

performing the previous steps for each unidentified matrix of n x m pels in the halftone image to generate a scaled output of the halftone image.

14. (Cancelled).

15. (Previously Presented) The computer readable medium of claim 13 wherein no pel in the first matrix of pels is shifted more than one position from its neighboring pels to generate the scaled output matrix.

16. (Previously Presented) The computer readable medium of claim 13 wherein no pel in the first matrix of pels is shifted more than once to generate the scaled output matrix.

17 (Previously Presented) The computer readable medium of claim 13 wherein the error diffusion process comprises:

identifying a n' x m' matrix of pels around each pel in the line of pels, wherein n' > n and m' > m; and

assigning each new pel value in the scaled output matrix of pels using a threshold based on an average intensity calculation of pel values in the n' x m' matrix of pels.

18. (Previously Presented) The computer readable medium of claim 13 wherein the error diffusion process comprises:

identifying a n' x m' matrix of pels around each pel in the line of pels, wherein n' > n and m' > m; and

assigning each new pel value in the scaled output matrix of pels based on a calculation of a rounded weighted mean of pel values in the n' x m' matrix of pels.